

ICI

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ICI

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Volume 46 Number 343



a show for all seasons

Rhododendron 'Purple Splendour'

Narcissus 'Highlife'

Azalea 'Hinodegiri'

Terrace of the 'Planters Grove' restaurant looking towards the Conservatory

Neoregelia carolinae tricolor

Polyanthus 'Pacific Hybrid' strain

Tulip 'Gudosnik'

Columnea gloriosa

(see page 100)



- 100 A show for all seasons Anne Bilsland
- 106 Men and markets:
Bill Duncan of ICI America Inc.
- 110 Project at Mogilev
- 116 People · projects · products
- 121 D-day is less than
three years away Michael Danckwerts
- 124 It's a small world – in flight John O'Donnell

Front cover

Queen Elizabeth the Queen Mother officially opened the Gardening Centre at Syon Park – a joint venture by ICI and the Duke of Northumberland – on 12th June. Seen here in the Great Conservatory, she is talking to Mrs. Elizabeth Hick, wife of Mr. Toby Hick, a joint managing director of the Gardening Centre Ltd. On the Queen Mother's left are Sir Peter Allen, ICI Chairman, and Lady Allen, and on the extreme left of the picture is Mr. Irving Johnstone, a director of GCL.

Photograph: Michael Taylor

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a show for all seasons

Anne Bilsland

Photographs: Michael Taylor



Visitors to The Gardening Centre at Syon Park in Middlesex study the route round the gardens on the site plan. Open all the year, the centre plans ultimately for a million visitors annually

Opposite: Showpiece of The Gardening Centre, the Great Conservatory, houses a large collection of tropical flowers, from popular house plants to rare orchids. Built by Charles Fowler in the 1820s for the third Duke of Northumberland, it inspired Paxton's design for the Crystal Palace at the Great Exhibition of 1851

Gardening is big business in Britain today. Ten million of us own gardens – and we spend around £85 million a year on plants, chemicals and machinery. The market is growing all the time. Three years ago Plant Protection Ltd., a subsidiary of ICI, announced that it was collaborating with the Duke of Northumberland to set up a national gardening centre – a shop window for British manufacturers and nurserymen – at the Duke's London home, historic Syon Park on the Thames opposite Kew. Two months ago the Centre admitted its first visitors and on 12th June it was officially opened by Queen Elizabeth the Queen Mother.

ICI and the Duke as joint shareholders in The Gardening Centre have spent more than £½ million getting the project off the ground. 'It shows,' says Toby Hick, Plant Protection retail sales manager and a joint managing director of the GCL, 'that ICI means business in the gardening industry. We have a double object in setting up this shop window for British gardening. First, we hope through the centre to encourage expansion of the gardening market, especially in garden chemicals, now worth about £10 million a year and in which ICI is a leader. Second, we want to establish ICI even more firmly in the public mind as a leader and innovator in gardening products.'

The centre, which covers 55 acres of the 200-acre Syon estate, will be open all the year round. It aims at a million visitors a year – it is already attracting many continental and American visitors – and offers a permanent exhibition of roses, bulbs, trees, hot-house and water plants, garden buildings and machinery, plus changing exhibitions of sculpture. What makes it special among gardening show-places open to the public is that all plants and garden equipment seen when you walk round the exhibition gardens can be bought on the spot at the Selling Centre in the old riding school or ordered for delivery.

'We may be called a nation of gardeners,' says Toby Hick, 'but British gardening methods are in general pretty traditional. In the chemical and fertilizer field we spend much less per head on our gardens than they do in America. Some sections of the gardening industry are still very fragmented and individual. Getting over 300 firms to co-operate – as we have done here – is a great step forward. Already we have quite a waiting list of firms who want to exhibit.'

'This is a unique project. The mass-market customer today is the small gardener, the chap who lives in the suburbs: he's the person we are interested in. So the more things we can introduce into this very beautiful setting which are also suitable for a small garden, the better. We are not trying to be another Kew Gardens – we are just showing first-rate examples of things most of us could grow in our own gardens. And all these plants, plus a large selection of labour-saving garden hardware and gardening chemicals, you can buy in the Selling Centre on the way out. It is run on supermarket lines and you can buy anything portable on the spot. Anything that isn't, you can order and have delivered – instant gardening, in fact!'

Ken Anderson, The Gardening Centre's other managing director, sees the whole project as a springboard to the gardening markets of Europe and North America. 'We are not just a background to a stately home and we are certainly not content merely with expanding the home market – although this is our prime concern at the moment. We intend to cash in on the enormous interest which is building up through all our overseas visitors. Our goal is to capitalise on this export potential and to develop this field both for ourselves and our 300 exhibitors.'

The Syon estate has been famous for centuries. One of England's earliest botanic gardens was created there in Tudor days and two mulberries imported at that time still

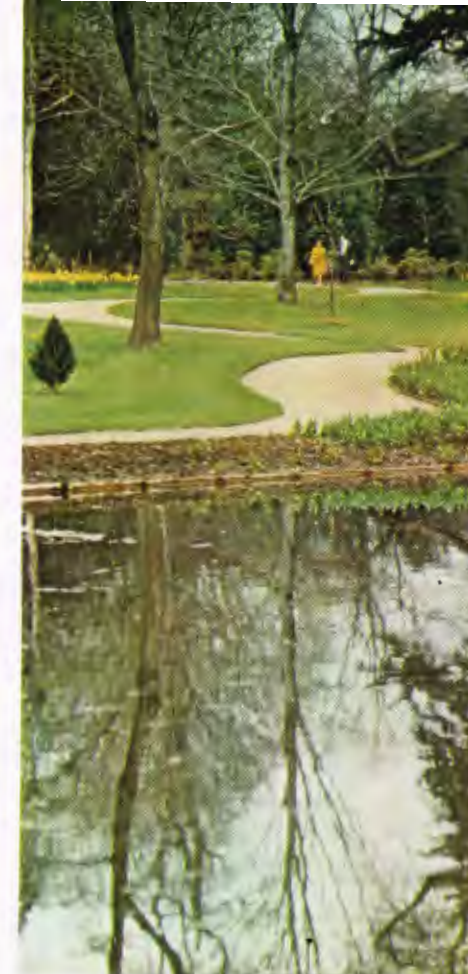


a show for all seasons



Some of Syon's rarest and most beautiful trees, planted by the famous eighteenth-century landscape gardener 'Capability' Brown, form the 3½ acre Woodland Garden, flanking the north bank of the lake. Thousands of bulbs, planted naturally and in formal beds, give a wonderful carpet of colour

Queen Elizabeth the Queen Mother officially opened The Gardening Centre on 12th June, when all proceeds were devoted to gardening charities. She is seen here with Sir Peter Allen, ICI Chairman, and Mr. Percy Thrower, a director of the GCL, touring the site in a Landrover



To make the quarter-mile-long artificial lake which now forms a centre-piece of the Gardening Centre site, 'Capability' Brown dammed up the Duke's River in the mid-eighteenth century. Many trees lining the banks date from this time



At the Retail Selling Centre in the old riding school visitors can buy any plant or shrub seen in the exhibition gardens



Four miles of new paths and roads have been built to give visitors access to all parts of the 55-acre site



An artist sketches the view down the lake, haunt of wild duck, herons and other birds. In the foreground, some of the thousands of tulips planted along the lake edge



Everything from a half-crown house plant to a £150 orchid, garden equipment and even buildings can be bought or ordered at the Selling Centre. It is run on supermarket lines with trolleys to carry purchases to the car park

Nine large bronzes lent by Dame Barbara Hepworth are on display in the Garden of Sculpture until September



live and bear fruit. Two centuries later, between 1767 and 1773, Sir Lancelot 'Capability' Brown, probably the most famous of all British landscape gardeners, laid out Syon for the first Duke of Northumberland, creating two artificial lakes and planting scores of rare and beautiful trees. In the last century Charles Fowler built the splendid Great Conservatory, thought to have influenced the design of the Crystal Palace and today the oldest building of its kind in Europe.

Under the guidance of Percy Thrower, a director of the GCL and well known to radio and TV audiences, the garden staff had the job of turning 55 acres of Syon's historic woodland into a shop window for twentieth-century British gardening. Right from the start he tried to preserve 'Capability' Brown's original design. 'The whole project has been a challenge,' he said. 'Like most big gardens, Syon has been rather neglected in recent years and you don't put that right in five minutes. We must have used gallons of 'Weedol' (the ICI paraquat weedkiller) to deal with the weeds. Then, since we expect thousands of visitors, we have had to plan and construct several miles of new garden paths and roads. I think we have been rather successful here—some weekends we have had six or seven thousand people on the site, but once through the entrance gate there is no feeling of crowds.'

He reckons the most difficult part of the job has been allocating space to the 300 exhibitors and getting individual displays planted up so that together they form an attractive garden. One thing he does not like is people comparing The Gardening Centre with the Chelsea, Shrewsbury or Southport shows 'because those are flower shows where everything is at its peak. Here at Syon there will be plants at their peak, coming on, and finished, the whole of the season. That's the difference between a garden and a flower show.'

'This is a new venture. Nothing like it has been done before anywhere in the world. So we are learning as we go. Had it been a bare site I don't think we could have done it. A lot of the trees on the site are more than 200 years old. You won't find a more varied collection of trees anywhere in the country with the maturity here at Syon.'



Gardening Centre director
Percy Thrower



Gardening Centre guide
Eileen Whittle



Gardening Centre chairman
Alan Maier



Gardener Frank Farndon

a show for all seasons

The site's big successes, he considers, are the woodland garden and the rose garden. 'The woodland garden, set in the framework of 'Capability' Brown's magnificent trees, is informal. We've been very careful when planting flowering shrubs, new trees and bulbs to keep it as a natural garden. The rose garden is laid out formally with 12,000 roses—400 different varieties from 21 different growers. Then the conservatory garden is also going to be very colourful. We have kept pretty much to the original formal design—it was laid out when the Conservatory was built—and have planted it with a wide range of summer bedding plants. People talk about the gardens being finished. They aren't finished, they never will be. They will be changing all the time.'

As he reels off statistics one gets an idea of the massive size of the new planting operation: 1500 different varieties of trees and shrubs, 12,000 rose bushes, hundreds of primulas and pansies, bulbs by the ton, the largest collection of water lilies in the country, acres of new turf. Within a month of opening, his gardeners were already planting bulbs for next spring. 'This year the daffodils were well past their best before we opened, but next year we shall open earlier. The Cornish bulb growers are coming in and we plan much bigger displays than this year. We have already planted quantities of miniature bulbs, cyclamen and snowdrops in the woodland garden and around the lake.'

When the gardens were being established there were often as many as 50 people working under him. Not all were experienced gardeners; some were labourers, others students, and they had quite a collection of nationalities on the site. Now there are 25 men working on the gardens, several of whom have worked at Syon for years.

Seventy-year-old Frank Farndon, recently awarded a long-service medal by the Royal Horticultural Society, started work at Syon in June 1920. 'I was sent here on hire for three days, then they asked me to take on the job for good.' The job in question was to mow Syon's 48 acres of lawn. 'There were no motor-mowers then. I used to walk it with a horse and a 9 cwt. machine and it took me three

weeks. By the time I had finished, it was time to start round again.' He had his first horse for 21 years, looked after it himself, and is proud that in all that time it never missed a day's work through lameness or sickness.

He is particularly fond of roses and looks forward to seeing the rose garden in full bloom this summer. 'They bloomed beautifully last year. It was a mass of colour. This year they should be even better. And the Conservatory is a wonderful sight too. I have never seen anything like some of the exotic blooms they have in there now. When I first came to Syon four African palms were growing in the dome of the Conservatory. They grew so large that the foliage filled the dome right out and it appeared black when you looked at it. I helped cut them down. It was like cutting through coconut matting.'

Tree specialist Reg Caile was brought in to get Syon's rare collection of old trees back into good shape. He is often called a tree surgeon but prefers the term forester. His is a very specialised job and it demands a good head for heights. 'Some of these trees have been fascinating to work on. The one I particularly like is the Zelkova (Siberian elm), a really extraordinary tree. The branches grow chandelier fashion and inside it is quite hollow—there are no inner branches—and it's like being in a cathedral.'

'In the records Syon can claim many "firsts" for height, girth and age. The largest tree on the estate is the big walnut tree in the car park. The trunk is 18 feet in girth, which probably makes it the biggest in the country, and it would be quite valuable as a timber tree. I don't know exactly how old it is, possibly over 200 years. The oldest trees on the Syon estate are the mulberries, planted in Tudor times. They are on the other side of the lake, on the Duke's private land, and are fenced off to stop the cattle eating the fruit and getting tight!'

An important objective is to help and encourage all gardeners, new and old alike. There is a staff of full-time guides who man the information kiosks dotted around the gardens. Among them is Eileen Whittle. She is British but just back in this country after living for 10 years in Australia. An enthusiastic gardener, with 'only a pocket handkerchief of a garden,' she is thrilled to have the chance to work at Syon. Normally she is on duty at the kiosk near Flora's lawn, so called from the statue of Flora, the Roman goddess of flowers, which stands on a 55 ft. column at the north end of the lawn. 'I find I mainly get asked questions about growing plants and naming them. If it's a really complicated question I send people up to the technical information office in the main building. We have two experts on duty there all the time. Sometimes we cannot give an immediate answer, so we get visitors to fill in a special form and then we send them the information they want by post.'

'Quite a number of our visitors come from abroad and quite a number, too, from far away in the British Isles. I had some people from Belfast last week and someone yesterday who had made a special journey down from Yorkshire. And one thing that quite amazes me is the number of people who go round the gardens even in the pouring rain. There's no stopping a really enthusiastic gardener!'

Alan Maier, chairman of The Gardening Centre, sums up: 'What you see now is only a beginning: we have many exciting ideas for the future, certainly more than enough to keep us busy for many years to come. We know already from our surveys that our visitors will want to return in the year to see the various seasonal displays. But more than this, we intend to show them each year something new in garden design and gardening techniques. And we feel confident this will enable us to justify our claim of being "The Greatest Gardening Show on Earth".'

Managing directors Toby Hick (left) and Ken Anderson



Bill Duncan of ICI America Inc.

Twenty-seven years ago Bill Duncan, a young Scottish school-leaver from Ardrossan Academy, signed on with Nobel Division at Ardeer as an apprentice engineer. Four years ago he became a general manager at Head Office. Just under two years ago he became the first president of ICI America Inc.: a long way from wartime apprenticeship, yet not so far from it in spirit as might be the case with most other men. For Bill Duncan's engineering background was far more than a specialised activity: it was a discipline which helped his understanding of other matters along the road from the shop floor to the executive office. 'I covered a number of aspects of engineering, in each of which I acquired a business experience wider than engineering jobs in themselves can give. But the broader one gets, the less quantitative one's decisions can be.

I find it a refreshing change nowadays to play the much more intuitive business role that marketing demands.' In 1946, five years after joining Nobel Division, he went to the University of Glasgow, graduating with 1st-class honours in mechanical engineering in 1950. On qualifying, he re-joined ICI in the then Billingham Division as a plant engineer on their sulphuric acid plant. 'At Billingham I probably got one of the happiest starts anyone could hope for. Billingham in those days was a place in which nearly everyone on the graduate staff came in from other parts of the country. So there was no tradition of having been there as a "born-and-bred man" for a long while.' Later he became successively assistant machine shop manager, assistant workshops manager, and eventually workshops manager. 'Billingham

workshops was a friendly place and a great one for nicknames. Names like Jingling Geordie, Gunboat, Sinbad the Sailor, and many more. It was also an excellent place from which to acquire an experience of Billingham's complex engineering.' From there he moved on in 1958 to become works engineer of the gas and power works, and he stayed on the engineering side of gas and power until he became chief engineer and engineering director of Agricultural Division in 1961. Three rapid switches then followed. In December 1963 he left engineering for the first time to become Division overseas and purchasing director, but hardly had he settled into that very different post than he moved to Head Office as general manager—management services in August 1964, leaving to take up his present post in September 1966.

'Millbank struck me at first as being very staid and almost slow-moving, yet it gave me a much broader view of ICI than before. As general manager—management services I found it fascinating to go around the Divisions and find out how much each Division differed from the last. Each thought they were doing well in the job of becoming more productive and it was always the other Division that was responsible for the lack of profit.'

'When we decided to locate Management Services in Cheshire, we thought it reasonable to give people up to twelve months' notice. In America we made the decision in June to move our Providence office and most of our New York office out to Stamford, Connecticut, and we had everyone there in the second week of August. To do these things quickly is kinder in the end than to do them gradually. I saw a statistic quoted the other day which suggested that 20% of the United States population moved house every year, and this is a staggering difference in terms of mobility. Acceptance of the need to move is easier in the case of the United States than in Britain.'



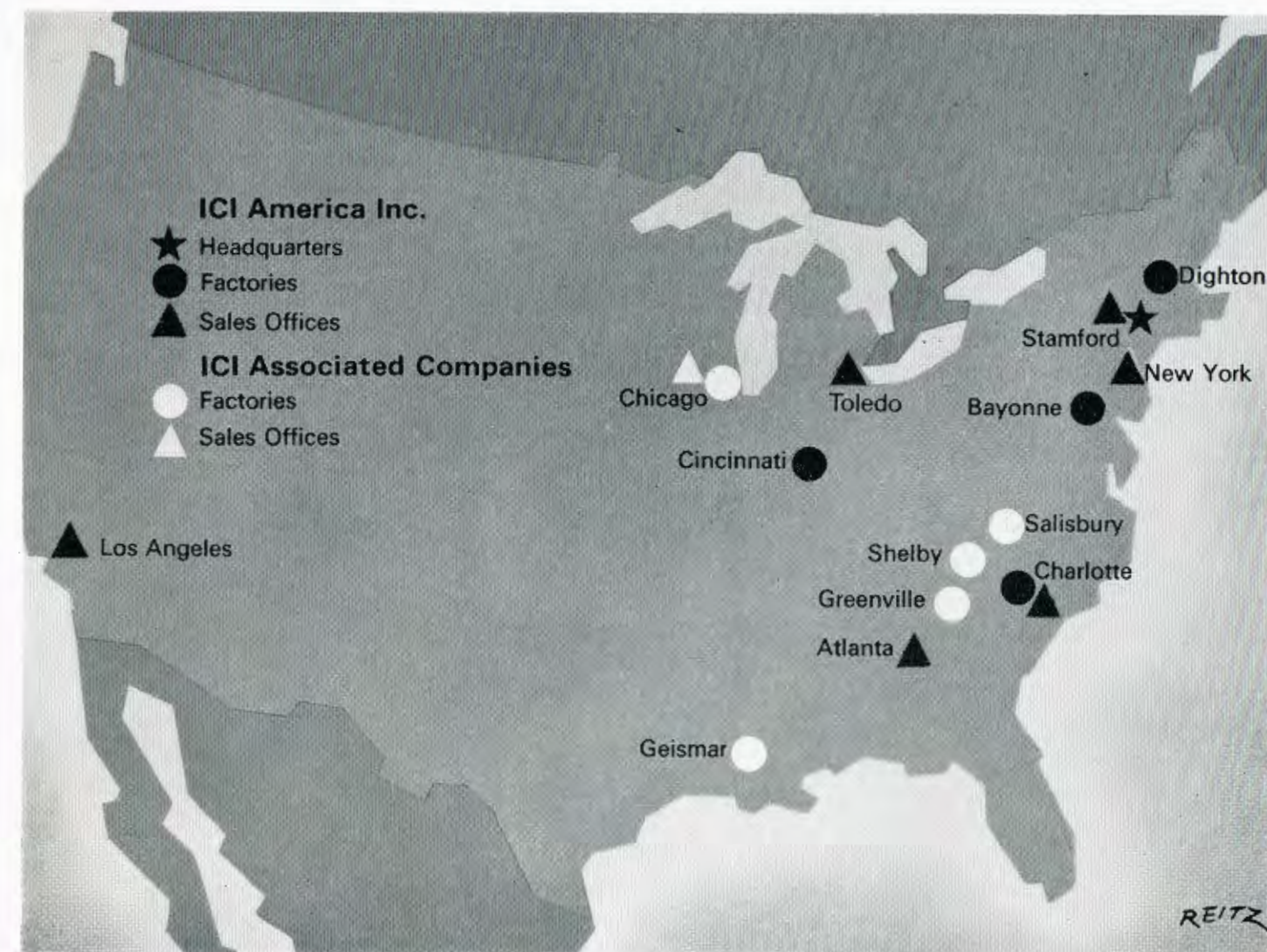
In Britain it is hard to grasp the sheer scale and variety of the market for chemical products in the USA. Over there ICI is well known in the chemical industry and financial circles but is virtually unknown to the general public. As Bill Duncan points out: 'This is the biggest chemical market in the world—the US chemical industry grows by more than one ICI every year: about £1,500,000,000 of sales. This is very sobering. Nor is it only a question of size in money terms. The geographic spread is enormous, and it breaks down into regional markets, each and every one of which demands special handling. One gets quite a few surprises in the first year or so. Even to this day you find people from the South referring to the Northerners as Yankees. This has to be recognised, and you have to sell accordingly. In the South a salesman must know his customer personally and must take time to talk about personal matters before turning to the business discussion, whereas in the North the tempo seems to be different, with a greater emphasis on the hard sell. Then

the Rocky Mountains divide the country: the whole area west of the Rockies is a different market, much more integrated north and south and across the US/Canadian border than elsewhere. In many ways San Francisco, for example, has more in common with Vancouver than with New York. And of course San Francisco is about as far from New York as is Britain. The Middle West, again, displays the isolationism—and some of the attitudes towards Europe—that we've known about for years. But knowing about it is one thing, selling to a market influenced by it another.

'These problems of size with normally many hundreds of miles—and quite often up to 3,000—between you and your customer put a heavy premium on efficient transport distribution. To guarantee delivery by a certain date is to take on rather more than what this undertaking normally means in the UK—but the attack on transport problems has also been taken much further. Within the next year, for example, a 2,000-mile-long pipeline will be completed through

which it will be possible to move at least a million tons of anhydrous ammonia each year. This will connect the farmlands of the mid-West with the large ammonia plants built near the coast of the Gulf of Mexico to take advantage of the cheap and abundant natural gas found there. On the other hand, the railways and road trucking firms, who now move about 90% of the 135 million tons of chemicals shipped each year in the US, are not standing still, and are meeting the challenge by new techniques and equipment. Recently, for example, "super-jumbo" tank cars, each capable of carrying nearly 36,000 Imperial gallons of ammonia, have gone into service.'

How does ICI America Inc. fit into this enormous and ever-growing market? 'We are a small company by US chemical standards,' Bill Duncan admits. 'We are considerably smaller than C-I-L, for example, and smaller than ICI's associated company Fiber Industries Inc. in actual measured turnover, but FII is a production company only, which does not market. About half of



ICI America's dollar sales come from products that we make in the US, the other half either from C-I-L or from ICI imported products. Textile and paper chemicals dominate our traditional manufactured product range, but we also make some specialty organic chemicals (including 'Fluothane,' the anaesthetic drug). Imports include heavy chemicals like cyanides and chlorinated solvents from Mond Division, and paraxylene and plasticiser alcohols from HOC; 'Fluon' and 'Melinex' from Plastics Division, and a whole host of other ICI products. We are doing some test marketing for Paints Division with 'Vymura,' and we are selling a range of nitrogen-based fertilizers from C-I-L. For historical reasons we have a heavy concentration on the east coast: our head office is in

Stamford, Connecticut, quite near New York City, and we have also retained part of our old New York office, largely for the use of ICI travellers. Our biggest factory is at Dighton, Massachusetts, where we make most of our dyestuffs and also textile and paper chemicals; and now we are building a new plant to make 'Fluon' at Bayonne, New Jersey, which is just across the Hudson River from New York City.'

Another sharp difference, Bill Duncan finds, is the extent to which lawyers are involved in US business. 'Anti-trust legislation looms large if you are running any sizeable business in the States. Large companies are not encouraged to become substantially larger by acquiring other companies in similar fields.

'One finds that although people speak surprisingly openly about the way they operate their businesses—much more openly than in Britain—they are extremely careful about the anti-trust legislation, while any situation remotely suggesting any restriction on sales is, properly, anathema to them. American businessmen say the law is too intrusive,

but they seem to have found a way to work with it.

'And the same applies to banking. As President of ICI America I have been surprised at the extent of my involvement with bankers in discussing our cash flow and profits. We are financing a large part of our development from within our own resources, and we have been arranging a loan from a consortium of leading US banks, against ICI America's balance sheet. They certainly look at us with a great deal of interest because we are ICI, and this is one way that being part of the corporate whole really matters. I am sure our US banks are much more interested in us because we are an ICI company.

'Of course, there is a traditional difference in banking. The banks are not only concerned with the term of the loan, the number of years, or the interest to be paid. They want the borrower to hold with that bank a certain level of balance year by year. It is not really any tighter than Britain, though. In the end, if you calculate the cost of the money, you either pay it by giving the bank a certain balance against the loan for them to hold in current account to use, or you pay a slightly higher rate. It comes to the same thing.

'But apart from all these differences—in scale, in variety, in business practice, law, banking—the overriding difference,' says Bill Duncan, 'everywhere you go in America, is the attitude towards the consumer. Not only is the customer always right, but in a land where the customer calls the tune he is much more likely to take his business elsewhere.

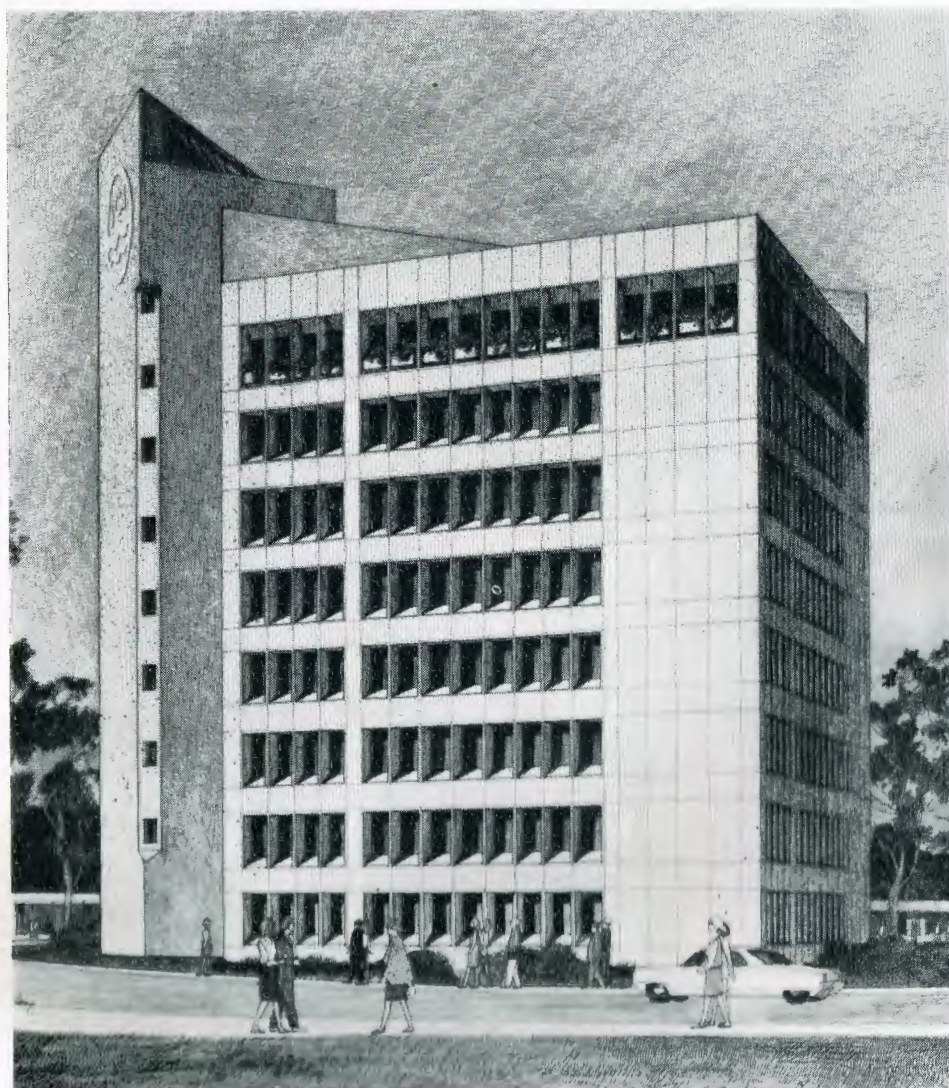
'I have deliberately sought exposure to ICI America's customers. And it is a very sobering experience to hear from their own mouths what your customers think of you. They are entirely forthright and candid, far more so than they would ever be in Britain. So far as you as the supplier are concerned, the goods must be there at the right time, be of the right quality, and at the right price. Now in the dyestuffs business, for example, this is extraordinarily hard to do when you consider the number of products involved. Yet the textile industry people in the States will admit

quite frankly that they expect us to be able to cope with *their* wrong forecasts of demand. And if they need a particular dyestuff in five times the quantity they said they would (and it's always wanted yesterday), then if we haven't got it, someone else will get the business. The whole concept that the customer is there to be satisfied really means something, and even when I am on the receiving end of it I think it is right. This is the view that has made America an affluent society.'

Behind his declared intention of putting together a wholly-owned ICI company viable and profitable even at its present size and which in the future will be a much bigger force in the US chemical industry, Bill Duncan, as ICI America's first President, sees his job as constructing the vehicle for ICI's new technology in this market. But consolidation of existing hard-won positions must come first: 'My first job is to run the present business more efficiently and improve profits. Unless we start from a sound base, it will be quite wrong to have any long-term aspirations. Next, I must integrate the three existing wholly-owned ICI organisations (ICI (Organics) Inc., Chemical Manufacturing Co. Inc. and ICI (New York) Inc.). We have already organised departmentally, crossing the old company boundaries, but there are nevertheless still, quite understandably, attachments to the previous companies.

'I want to draw on the strength of that old attachment, but at the same time to turn people's minds towards thinking about ICI America first and their previous attachments second. Only when we have got this right can we build a bigger and newer organisation as a base for future expansion: in particular, we need a bigger, broader, stronger marketing structure. We hope to find more people suitable for our business and develop them for greater responsibility—people who can help us to seek new ventures and opportunities—and interpret the needs of the US market for ICI as a group. Last, but not least, I want ICI people in Britain to know what the United States is all about, what it is like both to work here and to live here.'

An impression showing back and side view of the new ICI America Inc. corporate headquarters which will be in Stamford, Connecticut

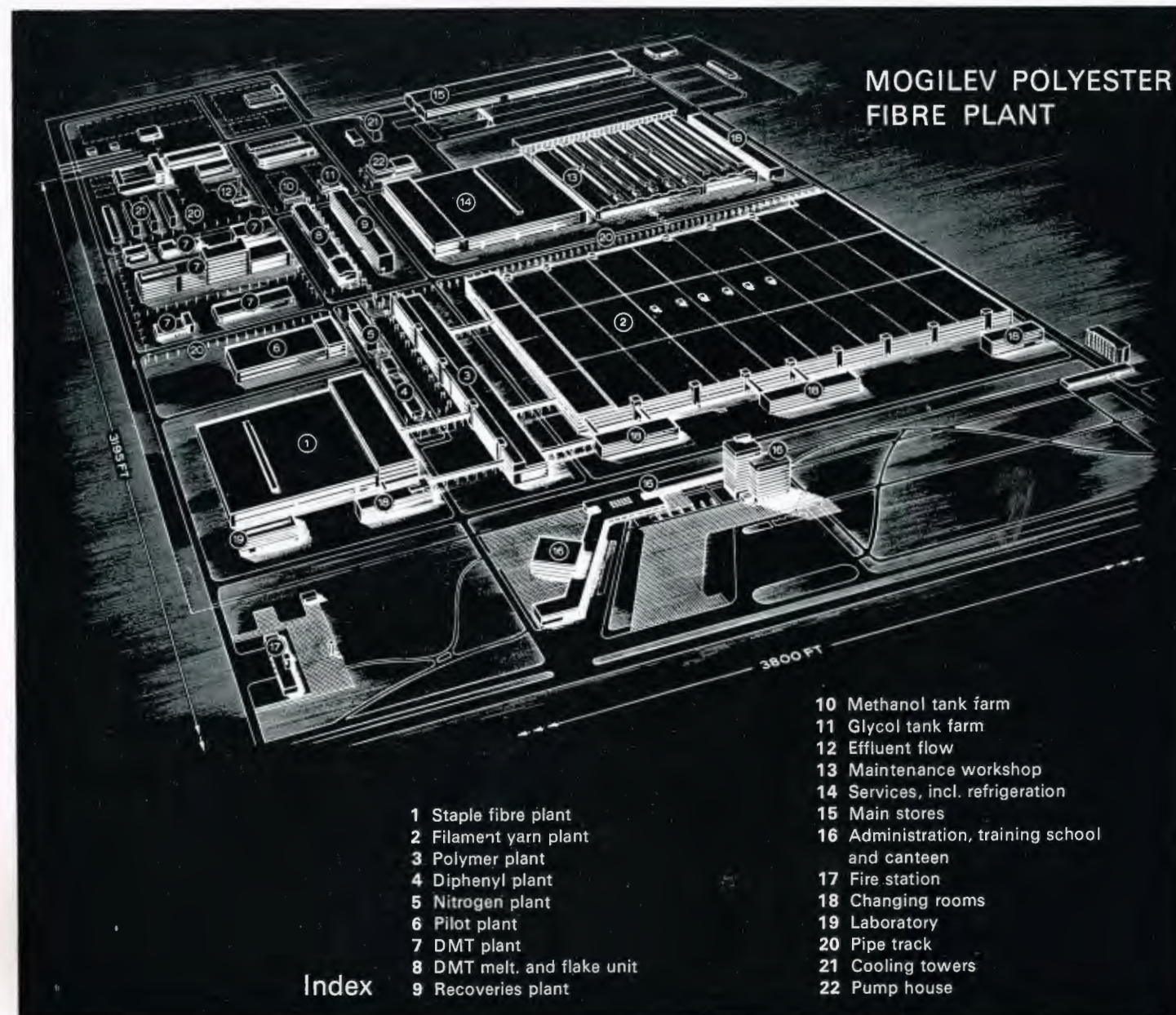


Top: Dryer being charged with wet presscake in dyestuffs plant at Dighton, Massachusetts

Bottom: Bagging 'Alloprene' at the Bayonne plant in New Jersey

project at Mogilev

Two hundred miles inside the western borders of the USSR and 120 miles south-west of Moscow, a giant Terylene plant is going up at record speed. At 50,000 tons a year its designed capacity approaches the ICI output of this fibre in Britain today, and it will turn out 70 different products for the fast-growing textile industry of the USSR. Overall cost will be £100,000,000 and eventual work force over 7,000. Partners in this venture are ICI, Constructors John Brown Ltd., and Dobson and Barlow Machinery Sales Ltd. Together they form the consortium Polyspinners Ltd., to whom the value of this massive operation is £30,000,000. Later this year the pilot plant should be working, while the main plant should be in production by the end of 1970. In this article, four of the men most directly concerned explain how the whole vast undertaking was originally planned back in 1964 and how it is being carried out. They are James Wallis, Overseas Technical Manager (and Export Manager), ICI Fibres Ltd.; Dean Rallis, Project Manager, Polyspinners Ltd.; William Liddell, Works Manager, of ICI Fibres Ltd., leader of the 60-strong ICI commissioning team which will work in Russia during the next three years; and Eric Haffenden, an Assistant Engineering Manager, ICI Fibres Ltd.



Artist's impression of the £100m. Terylene plant nearing completion at Mogilev in the USSR. Area is over 300 acres, output at 50,000 tons a year approaches total ICI output today, work force will be 7,000



Mogilev: a view of the central area in the provincial town south-west of Moscow which will become familiar to 250 British men and women, including ICI's own team and their families. On the left is the Palace of Culture of the Volodarsk clothing factory

Dr. Wallis sees the whole huge enterprise as only the first stage in a colossal expansion of the market for man-made fibres in Russia – for clothing and industrial uses alike.

How, we asked him, did it all begin? 'Basically, the Russians wanted to make polyester fibre themselves because they had the necessary raw materials – mixed xylenes from their own huge resources of petrochemicals – and because the fibre itself is outstandingly useful. Above all, it will reduce their dependence on the outside world for these yarns, because they will be using their own raw materials, their own skilled labour, to help in clothing their own people. Their potential demand is much greater than even the present project suggests. Eventually they mean to expand this industry to four times the present scale, from 50,000 tons a year to 200,000 tons. So there should still be a considerable market for polyester fibres in the USSR long after the commissioning.'

For the USSR, seeking to reduce their imports of natural fibres like wool and cotton, the new plant can cut the cost of textiles quite dramatically. If the whole output of the plant were wool, for example, the annual import saving would be £50,000,000, while if it were cotton it would still equal £10,000,000. 'From 1970 onwards,' Dr. Wallis explains, 'the USSR's textile industry will have its own source of one of the world's best fibres in large quantities. They will therefore be able to produce many varieties of cloth in far larger quantities than they can now. For instance, much of the country is very hot indeed in summer, so that materials like the lightweight cotton/polyester mixture for making shirts will be most useful to them, while the type of garment they will be able to make will also last much longer.'

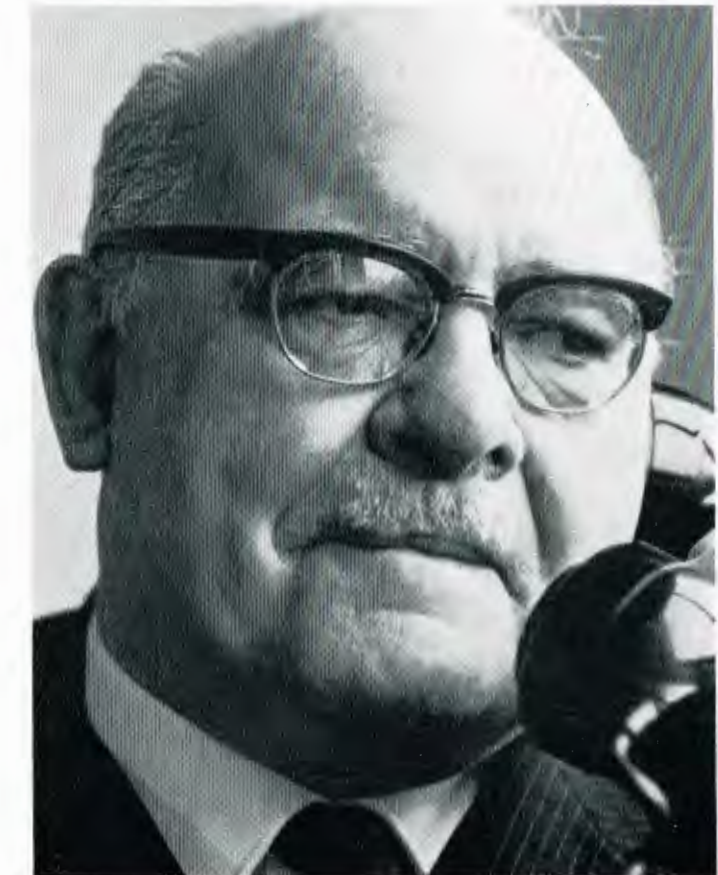
'Finally, there is an exciting potential in Russia for applications where natural fibres cannot be used. Take the parachutes which slow down satellites. No natural fibre could stand the heat generated by their downward rush through the air at seven miles a second. So they have to be made from synthetics. So, too, are the fine hairlines in a telescope.'

In many ways the USSR is an ideal country for a synthetic fibre project on this scale. The polyesters are based on petroleum, and she has some of the world's largest petroleum

Says Dr. James Wallis, overseas technical manager and export manager, ICI Fibres Ltd.:

'The sheer scale of the job – putting up a plant of this size so quickly – makes this Russian project rather like building Wilton Works and Kilroot Terylene plants on one site and including at the same time all the necessary services. I'm glad my education, chemistry plus engineering and research, took in everything from structural engineering to molecular research.'

Dr. James Wallis, overseas technical manager and export manager, ICI Fibres Ltd.



project at Mogilev

market conditions have changed over the years, the yarns of today are no longer the same ones being made at the time of the contract. So we have tried to persuade the customer to change his requirements and accept the yarns we are making now and selling now all over the world.'

Looking to the future, the project at Mogilev could have a big influence on trade in general between the Company and the Soviet Union, because it concerns many commodities which are not fibres but which are used with them, like dyes and special lubricating agents.

Eastern Europe represents a major area for expansion for ICI's commerce, and 8% of all overseas exports already take place there. With the building of the factory at Mogilev there will be immense opportunity for many contacts to be made with the Russians at all levels – and this could play a key part in helping to advance future trade between ICI and one of the world's largest customers.

Dean Rallis, director and project manager of Polyspinners Ltd., received most of his education in the USA, where he gained much of his earlier technical experience. He holds degrees in chemistry and chemical engineering.

Joining Constructors John Brown in 1961, he spent three years in their process group before becoming a project engineer and later a project manager. Now project manager for two major USSR contracts, paraxylene (ICI/Phillips licence) and polyester fibre (ICI licence), he has been associated with them for the past 3½ years.

As contract and site managers CJB have co-ordinated the work of the three companies taking part and looked after the engineering, the design, and the procurement of materials for the chemical section of the plant – some £10m. worth in all. They have also acted as spokesman for Polyspinners on matters of common policy and handled all documents and their translation. Travel between and in each country by British and Russian staff is also their responsibility.

Dean Rallis, project manager, Polyspinners Ltd.



deposits. She also commands large amounts of power for production purposes. Her immense hydroelectric projects of recent years include the largest generating plant in the world at Krasnoyarsk, Siberia, with a capacity of 4,500 megawatts. Finally, she is strong in technically-trained staff, turning out three times as many technically-trained people as the USA.

A few facts and figures spell out the giant dimensions of the whole exercise. The industrial yarn section alone, forming 36% of the output, and probably the largest in the world, reflects the huge demand in Russian industry for reinforcement materials, in particular conveyor belting. Filament yarn for clothing will account for 24% of production and staple fibre (suits and shirts) for 40%.

How did ICI work with the other members of the consortium? we asked Dr. Wallis. Who did what, and how? 'ICI supplied the whole background of polyester manufacture to the contractors and subcontractors. Many thousands of drawings went from Harrogate to the various contractors, who also had to be put in touch with many suppliers of specialised equipment. The key drawings of the contractors have been inspected by ICI to make sure they are correct. Hundreds of data sheets and technical memoranda have been prepared and scores of operating and maintenance manuals. To produce 30 operating and control manuals for the polyester plant alone took 35 of our staff more than six months. We have acted throughout as a technical co-ordinating and "cementing" influence.'

Constructors John Brown act as managers for the whole and are building the associated paraxylene plant, the chemical section of the main plant, and the very large dimethyl terephthalate plant subcontracted by CJB to Simon-Carves Ltd. Dobson and Barlow Machinery Sales Ltd. have built a lot of the textile machinery, both in the primary fibre-producing area and on the textile side.

'The outstanding problem,' stresses Dr. Wallis, 'has been the Russians' desire to have the most up-to-date machinery, sometimes even before we had properly developed it ourselves. Sometimes we have had to explain to them that they could not have what had been originally offered: development had shown that such plants were not viable. The defining of guarantees has been another problem. Since

'We coped with engineering, design and negotiation, materials procurement, inspection and shipping, stage by stage – and in order to do so took on a large number of people and worked out new techniques in management, planning and cost control. When the work began we broke the project down into various plant areas, each with its own project engineer in charge.'

During the engineering stage over 200 engineers, draughtsmen and technical clerks were employed.

Between October 1964 and the present, Dean Rallis represented CJB and Polyspinners throughout five extended periods of negotiation, some in Britain, some in Moscow. To do so he visited Moscow 26 times for periods of up to 10 weeks each, with teams of engineers and draughtsmen.

'We set up a drawing office in Moscow to minimise delay and carry out on the spot any modifications agreed. We also did all the documentation, and set up a special organisation to deal with it. We are using the whole floor of a building in Portsmouth plus space in our London office, about 10,000 sq. ft. in all, and to date have sent 60 tons of technical documentation by air. A task of this size is too big and too complex to be run as an ordinary job. We had to devise special techniques and methods. The paper work was a very good example. We had to set up a system in which various items were funnelled through a predetermined path leading to Moscow.'

Every one of over 20,000 drawings and an equal number of pages of texts and schedules had to be translated and typed into Russian. A translation department had to be set up. An index with all the Russian technical terms used was established to ensure consistency. The translation department at CJB employs a staff of about 30, of which 20 are competent technical translators and 10 are Russian-speaking typists and administrative staff. At peak periods, every competent agency or free-lance technical translator in the UK is used as well. Additionally, 10 interpreters work in the discussions with the Russians and accompany USSR inspectors on their visits to Polyspinners' subcontractors. Some are also interpreters for the course of training for Russian specialists now in progress at our own Wilton Works.

'For inspection, packing and shipping we also set up an elaborate organisation to deal with the 7,000 tons of equipment which had to be shipped over. Every item has its own "technical passport" as the Russians call it, and we have prepared thousands to be inspected just as much as the equipment itself.'

Although the engineering design is now virtually complete and the shipment of materials well under way, the erection of the plant has only just begun. 'As managers of the contract we also manage the Mogilev site – a very great responsibility as the whole emphasis of the project moves from the drawing board to the site. The success of this project depends on the success we can make in erection and commissioning of the plant complex. CJB will provide 70 erection engineers, plus the necessary administrative and welfare support. We will also be actively involved in commissioning ancillary plants and the recoveries plant. CJB will also supply engineering support for ICI during commissioning. Dobson and Barlow will provide over 30 engineers to erect textile machinery.'

Dean Rallis, who has now visited the Mogilev site four times for periods of 2–5 days each, has been deeply impressed by the energy of the Russians in creating a whole new community from scratch: 'The site itself is a new one in a new

town, and they have done a first-class job, starting from square one. Roads had to be built, houses for the people doing the construction work, and schools. A whole new community had to be created to accommodate the people who are going to erect the equipment and others who will be operating the plant. A new power station had to be built to service the factory – and a new bridge over the River Dnieper.'

'When I went to Mogilev,' says William Liddell, 'I was impressed by the sheer size of the site (well over 300 acres – about as big as Hyde Park) and by the energy being applied to its construction. I was also impressed by the Russians' obvious determination to fulfil the plan, and by the detailed knowledge and interest shown by senior people from the state chemical industry. Even by Russian standards this is a big job: nothing less than the best will be expected from the British teams, not least from ICI.'

A graduate in physics and mathematics from Glasgow University, William Liddell joined Plastics Division in 1946. During the last seven years he has been at Terylene Works, Wilton, first as quality manager and later on as deputy works manager. He was appointed commissioning team leader in 1967 with the status of works manager.

For William Liddell, leader of the 60-man ICI commissioning team at Mogilev, three outstanding factors make this the toughest, yet most interesting operation he has yet tackled in a varied career with ICI, seventeen years of which have been on Terylene. 'Above all, you have the very large scale of the plant complex itself. But it's not just a question of size. The standards of performance and quality set by the contract are exceptionally high too, and the timetable is tight. Combine all these requirements, add the barrier of language, and you have a unique challenge to everyone concerned, engineers or chemists, British or Russian.'

William Liddell, ICI commissioning team leader



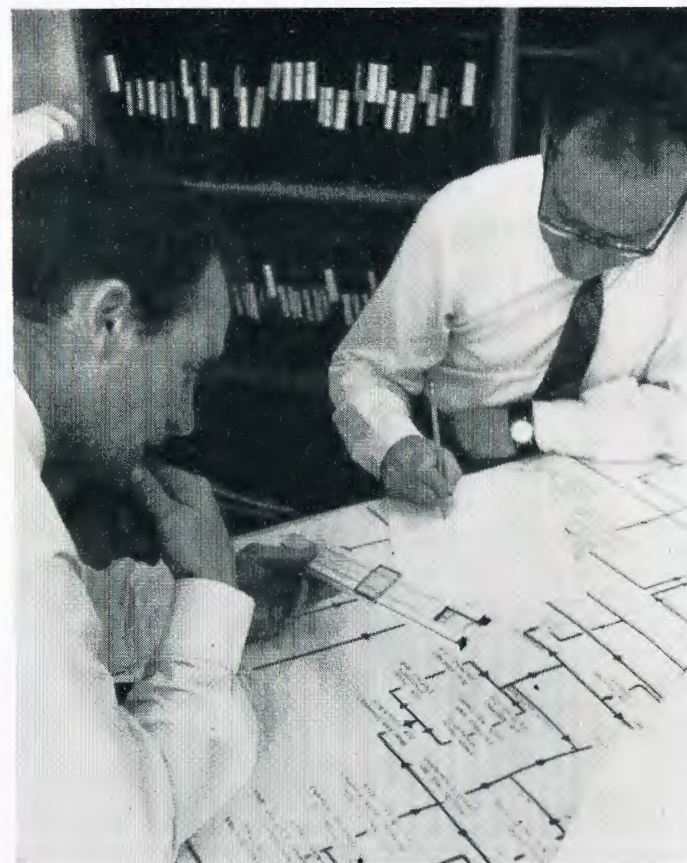
Staff were carefully selected. 'First we drew on our previous experience of commissioning and analysed this particular project. Then we could decide the size and structure of our team and the balance of technical and operational experience desirable from each member. We also had to make up our minds about what kind of person we want for the job – their personal characteristics and their domestic situation. Then we prepared a short list of people in these categories, drew up a special contract of employment and carried out a number of interviews. As a result, 85% of the people interviewed accepted the jobs offered.'

Once chosen, how are the team members prepared in advance to live and work in Mogilev, 1,500 miles from Wilton, in a climate with sharp extremes of heat and cold? 'We want our people to be efficient, of course – but we also want them to be flexible and to settle down fairly quickly into the new conditions. And they must be able to cope with the unexpected. So we are widening and deepening their existing experience, helping them to master the design and operating details unique to the Mogilev plant. And we are developing a series of special measures to deal with probable difficulties. To ease communication, improve personal confidence and improve good relations with their Russian colleagues, all team members are being taught elementary Russian. Information on local living and working conditions is being passed to team members as we obtain it.'

A two-way business

Since nearly all the team members are married and most of them have families, a leave pattern must be organised, especially for those who will have to leave all or part of their family at home in Britain. Everyone must be properly housed and fed, with the best possible arrangements on the spot for recreation and welfare. The children will need English schooling at Mogilev, while their mothers will be encouraged to help the office work side of the whole project, or play a part, such as teaching or nursing, in the life of the British community of some 250 men, women and children who will spend a year or two in the USSR.

This preparation is a two-way business. Some of the Russian works staff concerned will be coming to Britain for special



Frank Whitaker and Joe Collins of the fibres section at Wilton Terylene Works check a chart specially prepared for Russian training. Behind, a corner of the document library

instruction: 'During this year and next we shall be training over 100 Russian staff at ICI at works level. These people will be of high calibre, and many of them will already have had experience of polyester or nylon manufacture in the USSR. Our main task is to get across to them the importance of fine detail and of a flexible approach to the job, both of which are vital in making high-quality products at high yield. We also hope to show them how to get the most out of the equipment they will be using. This will be done by carefully-planned programmes of work, including work in real plant situations.'

'Our largest remaining uncertainty is how we will all work together on the site and how our Russian colleagues will deal with the problems of size and complexity – in particular the training and building up of a works force of over 7,000 people. The British teams will be a mere handful in this situation, so effective direct communication will be absolutely vital at all levels.'

Within three years the plant should be on stream and the ICI team should have completed their work: 'We expect to commission a pilot plant making polymer, filament yarn and staple fibre during 1968. The main plant will be commissioned in several stages, starting in 1969 and finishing about the end of 1970. For the main plant, ICI staff will be on the site for various periods between one and two years, and will return individually or in small groups during the course of 1970.'

In conclusion, sums up Mr. Liddell, 'On this project we are attempting to do in the next three years about as much as we accomplished with Terylene in 10 years – in a very different environment. ICI's hard-won knowledge of the problems makes this possible – but only if energy is tempered by experience and also by common sense.'



John Hodgkinson of the Fibres Engineering Group examines an assembly model of a staple spinning melter specially made for training purposes by apprentice engineer George Liddle

'On the human side,' says Eric Haffenden, an assistant engineering manager with ICI Fibres Ltd., who led the ICI design team on the project, 'it has been interesting to work with Soviet engineers in jobs like our own, and so to get an insight into how their minds work. Technically, the job has widened my own interests from pure engineering to cover all aspects of operation, quality control and material supply. Starting afresh to plan one integrated job on this scale, drawing on experience with our own plants, which we've built up step by step over the years, has been very satisfying.'

Seconded to the project in October 1964 as leader of the ICI design team, he was appointed an assistant engineering manager in January 1966. Returning to Harrogate in September 1967, he continued as a member of the project team, in which capacity he has made a number of visits to Russia.

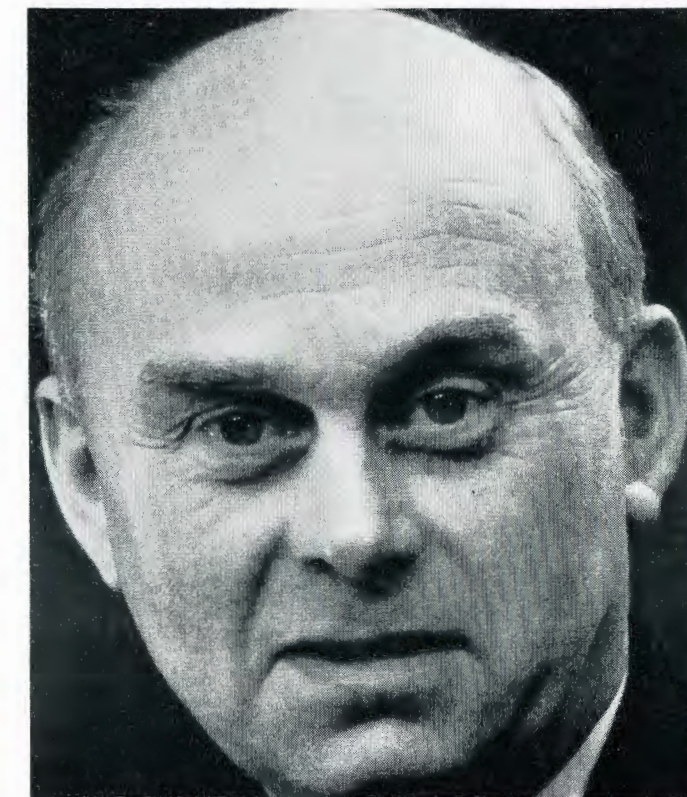
Size as such, he feels, has not made all that difference to the design. More important has been the effect on plant layout of various Soviet civil standards and regulations for safety and health, and also the completeness of the data required by the contract. Nor is this all: the contract requires the performance of the plant to be demonstrated in a series of comprehensive acceptance trials – something quite new in Eric Haffenden's experience – and the design team has had to work out detailed methods for these trials.

Overall, he has thoroughly enjoyed the challenge of the task – and of living and working in the USSR. As he himself sums it up: 'I have learned that bolshoi means something more than a ballet; that you can drink vodka without getting a hangover; that you can live quite comfortably when the outside temperature is -30°C ; and that the Moscow Underground is every bit as good as it is cracked up to be.'



Street scene among summer trees, Mogilev

Eric Haffenden, an assistant engineering manager, ICI Fibres Ltd.



people · projects · products

Birthday Honours

Four ICI names appeared in last month's Birthday Honours List. Mr. Cyril Pitts, former chairman of the ICI group of companies in India and, since April, general manager - overseas at Head Office, receives a knighthood for his services in India. Mr. Norman McKenna gets the MBE for services to export. He was managing director of Svenska ICI in Gothenburg from 1963 to the end of June when he returned to Britain to take up a post with ICI (Europa) at Millbank. Mr. Tom Burns, a technical clerk in the Nobel Division Engineering Department, also gets

an MBE (Military Division) for his service to the Army Cadet Force. He is officer commanding the Ardeer Factory Cadet Troop. Mr. Wilfred Orchard, an assistant foreman with Paints Division at Slough, receives the BEM for services to industry and to the Company's first aid scheme.

Another award of interest is the CBE for Mr. W. D. Scott, an ICI director from 1954 to 1965. His award is for his services as chairman of the Home Grown Cereal Authority. Mr. R. E. Newell, who retired in 1962 as managing director of the then Wilton Council, receives the OBE as a member of the Nuclear Safety Advisory Committee.



Sir Cyril Pitts



Mr. McKenna



Mr. Burns



Mr. Orchard



Roof examination work in progress in the Billingham anhydrite mine

Anhydrite Mine's world safety record

The biggest round of applause at Central Council at Scarborough - apart from that for Sir Peter Allen's maiden speech as ICI Chairman - was for Billingham Anhydrite Mine's world safety record. Mr. Mick Scott, the Mine assistant manager, spoke of the Mine's achievement of a year without a lost-time accident, said to be unprecedented in world mining history.

Speaking as a miner for 28 years, Mr. Scott said the

miners at Billingham were very proud of their achievement. 'In 1948', he said, 'we had 181 lost-time accidents and now 20 years later we have attained our objective of 12 months without a lost-time accident. Our next objective is a million hours.

'We have no incentive scheme; our reward is the knowledge that we have a good safety record. If you have a good safety record you have good human relations; if you have good human relations, you will have high production; and if you have those three you have security. Our miners have all of these and I am proud to be one of their team.'

Teesside's first mayor

A former Casebourne Laboratories manager at Billingham, Mr. Jack Brown, has the distinction of being the first mayor of the newly-created Greater Teesside County Borough. He now heads the largest local authority in the North-east and the seventh largest in the country. Mr. Brown, who is 69, retired from ICI in 1960 after 38 years' service. He has given many years to public work on Teesside, has been a member of Middlesbrough Town Council for 20 years, and was awarded the CBE in 1957. When the Conservatives won control of the new Teesside Council in the elections last year, they appointed him their group leader.

Among his other appointments Alderman Brown is chairman of Teesside Health Committee, chairman of the Health Executive Council for Teesside and a member of the Teesside Regional Hospital Board. He was also a member of the Clean Air Council for England and Wales from 1957 to 1965 and has been a magistrate for 27 years and chairman of the Middlesbrough Bench for 17 years.

ICI, which has more than one third of its home investment located on Teesside, is presenting the mayoress' chain to the new Council. It is being designed by Alex Styles, the chief designer for Garrards, the Crown Jewellers. The first mayoress to wear the chain will actually be an ICI employee, Mr.



Brown's daughter Judith, who has a job at Wilton Terylene Works. Her sister Jean, a school teacher, will take over as first lady for the second half of their father's year of office.

Teesside's first mayor, Alderman Jack Brown, with daughters Jean (left) and Judith

'TPX' plant on stream

The world's first plant to make commercial quantities of methylpentene polymer, the new plastics material marketed by Plastics Division under the trade name 'TPX', has been commissioned at Wilton Works.

'TPX' polymer was first introduced in 1965 after extensive research and development work in the laboratories at Welwyn. Among internationally-known companies who have recently introduced 'TPX' products are Rover and Vauxhall (car light fittings); Plessey (electronic components); Ferranti (aircraft instruments) and Cona (coffee machine equipment shown on right).

The new plant at Wilton has an initial capacity of 2,000

tons a year and much of this will be exported. The USA is expected to be the biggest buyer. The US Food and Drug Administration has recently amended regulations to allow the use of 'TPX' polymer in contact with food both under cooking conditions and in packaging applications.



Ex-Chairman is 90

Mr. John Rogers, Chairman of ICI from 1951 to 1953, celebrated his 90th birthday on 24th May. To mark the occasion, Sir Peter Allen, ICI Chairman, and Lady Allen, with Mr. George Woods, ICI Secretary, called on Mr. and Mrs. Rogers at their home in London, and presented him with a Georgian silver cream jug, a gift from the ICI Board. The jug, made by the London silversmith Charles Hougham in 1784, is engraved with a farmyard scene.

When he retired in 1953, Mr. Rogers had completed over half a century's service with the Company and its predecessors. He joined Nobel's Explosives Co. in 1899 at the age of 21 from the Royal Technical College, Glasgow,

where he was lecturer-assistant to the professor of chemistry. At the time of the ICI merger Mr. Rogers was technical director of Nobel Industries Ltd. After the merger in 1926 he was made a joint technical director. He misses the distinction of being a member of the original board by one day. He was one of two additional directors appointed on 8th December, the day after the Company was formed.





The British look for Mexico

ICI synthetic fibres are making a major contribution to the uniforms chosen for Britain's Olympic team. Bri-Nylon, Terylene and Crimplene appear in the formal parade clothes for men and women,

in the casual clothes for off-duty occasions and also in the functional sportswear for practice sessions. Mr. Hardy Amies, who has acted as fashion co-ordinator, has chosen a red, white and blue theme for all the clothing.

The parade outfits photographed above were designed by Mr. Amies himself. The

men wear navy blazers and white slacks in Terylene/worsted fabric. The girls have simple shift dresses with short sleeves in pretty blue Terylene shantung. To complete the outfit the girls have their beauty cases in the same fabric, scarlet straw trilby hats, white nylon gloves and red Bri-Nylon raincoats.

Appointed secretary of Royal Institution

Dr. M. A. T. Rogers, deputy head of Research and Development Department at Head Office, has been appointed secretary of the Royal Institution, the organisation which for almost 170 years has through research, lectures, publications and social activities helped to advance the general understanding of science and technology.

He succeeds Brigadier H. E. Hopthrow, a former assistant secretary of ICI, and his appointment was announced at the Institution's annual meeting, in May, when Lord

Fleck, a former chairman of ICI who is president of the Institution, was in the chair.

Dr. Rogers, who has 34 years' service with ICI, graduated from University College, London, with 1st-class honours in chemistry and physics, in 1932. He began research at University College as Tuffnel Research Scholar and in 1933 was awarded the Ramsey Memorial Medal. In the following year he obtained his Ph.D. degree and then joined ICI Dyestuffs Division. In 1949 he became head of the Division's Academic Relations Department and in 1958 he moved to Millbank.

A fellow of the Chemical

Society since 1932, he was a member of the Society's Council from 1953 to 1955. He has also been a Fellow of the Royal Institute of Chemistry since 1958 – he was a member of the Council from 1962 to 1965 – and he was also one of the managers of the Royal Institution from 1963 to 1966 and again in 1967–68.

ICI research associate

The item in our last issue on the new appointments to the scientific ladder should have included the name of Dr. H. J. Twitchett of Dyestuffs Division, who has been appointed an ICI research associate.

'Mouse' man retires

The first man to ever win a £1,000 award under the ICI Suggestion Scheme, Mr. Jim Scott of Mond Division, has retired after 42 years' service. An assistant foreman at the Division's Brine and Water Works at Holford, he received his record award fifteen years ago for devising a straw and barbed wire 'mouse'.

In those days the mains carrying brine and water had to be descaled frequently by passing a steel scraper through them, a technique known as 'mousing'. The disadvantage of this method was that the scraper stuck in the bends. Sections of the main had then to be dismantled before the scraper could be located and removed. After trying to improve the effectiveness of the scraper by backing it with a ball of straw, Mr. Scott hit on the idea of binding a straw ball 'mouse' with barbed wire so that the barbs would themselves act as scrapers. It was an instant success and was later adopted by several other Divisions.

Mr. Scott and his wife are off to Australia in October for a year with their oldest son.



Seventh ICI overseas course

When members of nine separate ICI companies gathered recently at Warren House, Kingston upon Thames, for the start of the seventh ICI Overseas Course, one of the first people they met was Mr. L. H. F. Sanderson, who, as on previous courses, gave an introductory talk on the history and development of the Company in the UK and abroad. No-one could have been better qualified, for when Mr. Sanderson retired in 1957 he had completed 45 years with ICI and its predecessors – the last eight as Overseas Personnel Officer – and had visited every ICI overseas establishment at least once.

Seen here at Warren House with Mr. M. K. Menon, of the Chemical Company of Malaysia Ltd., Mr. Sanderson joined the firm of Eley Brothers in 1912 and after five years service during the first World War with the Seaforth Highlanders he worked in the exports and sales departments of Nobel Industries Ltd. In 1922 he went to the Vienna office of Bickford and Company and four years later he returned to the UK to become secretary

to the then Sir Harry McGowan, who was later to become Lord McGowan and Chairman of ICI. Mr. Sanderson continued in this post right up to 1939, when he was recalled to the Army. He served on the General Staff, becoming a colonel, and then returned to ICI in 1946 to join the then Central Staff Department. He became overseas personnel officer in 1948 and his experience from then until 1957, plus his unique knowledge of the Company in earlier days makes his talks to the Overseas Course enjoyable both for him and for the men who attend from companies in so many different parts of the world.

Members of this year's Course, who have all spent some time in Divisions as well as at Warren House and at Head Office, are: Chong Chun Yin, ICI (Malaysia); T. K. S. Chui, ICI (China); F. Y. Y. Lee, ICI (China); M. K. Menon, Chemical Company of Malaysia; Y. Miyashita, ICI (Japan); G. M'Bijjewe, Twiga Chemical Industries; O. A. Phillips, ICI (Nigeria); Saw Tiong Goo, ICI Paints (Malaysia); M. Valencia, ICI de Mexico and S. M. Vohra, Chemicals and Fibres of India.



BCF guards airliner research against fire

A fire which completely burnt out the test chamber of a £186,000 aero-engine noise research unit at a Rolls-Royce works last December has led to a large BCF order for Mond Division. The fire, which occurred only six months after the official opening, caused £60,000 damage to a special echo-free chamber in which noise tests are carried out on aero-engine compressors. These tests are part of a long-term research programme aimed at reducing engine noise at its source.

The test chamber, biggest of its kind in the world, is at the Industrial and Marine Gas Turbine Division of Rolls-Royce at Ansty, near Coventry. The six-inch thick foam compound with which the chamber is fully lined on roof, walls and floor area, has been developed to give extremely high acoustic absorption properties. But the risk of fire is high when testing compressor and fan machinery.

To stop this happening again, Associated Fire Alarms Ltd. have designed and completed the installation of the biggest automatic fire prevention system yet devised using Mond Division's BCF, in the record time of two months. Now, if fire should break out, special high-speed detectors will automatically operate 760 nozzles to spray six tons of BCF from walls, floor and ceiling in 90 seconds.

Mr. Sanderson with Mr. M. K. Menon, Chemical Company of Malaysia

In the near future, international legislation guaranteeing acceptable engine noise will come into force and the value of research on noise reduction will then become more than ever apparent. Among the engines that will benefit from this research are the RB211, for which Rolls-Royce recently won a record initial £150 million order for the United States Lockheed L-1011 airbus, and the RB207, selected for the proposed European airbus.

British champion

John O'Donnell, author of our feature on model aircraft (page 124), is a technical officer in the production investigation department at ICI (Hyde). After graduating in maths and physics at Manchester University and before joining ICI, he worked for a time in the aircraft industry. But his interest in aviation goes back much further. He made his first balsa model at nine and flew model aircraft competitively at 14.

He is British senior free-flight champion and has held the title most years since 1952, and has also frequently competed in the world championships, most recently in Finland, where he managed second place.

His other hobby is photography and he regularly reports and photographs meetings for the *Aeromodeller* magazine and other publications. His wife June, who until their meeting had little knowledge of the model aircraft world, regularly accompanies him to meetings and shares his enthusiasm.

Youth will be served

If you were a works manager of a synthetic fibre plant, how would you react to the following request?

'I have already made some nylon 66 and rayon in the laboratory. However, I am having some difficulties in producing a uniform thread, and besides this, the nylon seems very brittle.

'I am also hoping to see what effect varying the percentage of constituents has on the quality of the fibre. As you have probably carried on research in this field already, I was wondering if you could send me experimental details and information on plastics of this sort that do not need high pressures to produce...'

Was this a new power in the industry pressing forward, possibly a dangerous rival,

thought Gloucester Works of ICI Fibres Ltd. when they received this enquiry? And that 'probably' was a bit much, really. Then they took a closer look at the signature. Their rival was a Bristol schoolboy, Derek Bond, who was working on a project to do with the by-products of oil – and they invited him along to the works to use his powers of observation and experiment on the spot.

don, he joined ICI at Billingham in 1926 and spent the whole of his working life, with the exception of two years as chairman of Lime Division in the early '50s, in the North East. He was for many years concerned with production, becoming works general manager of Billingham Division in 1940, production director in 1945 and technical managing director in 1953. Then, when the Billingham Division was split in two in 1958 he became the first chairman of the new Heavy Organic Chemicals Division. During his six years as the chairman he directed the merging of the Division with the Wilton Council organisation.

Although dedicated to his job, he found time for other activities. He was a member of the Petroleum Chemicals Committee of OEEC (1953–62), of the Northern Regional Board for Industry – the predecessor of the Northern Economic Planning Council (1954–63), and of the Clean Air Committee (1957–61). After his retirement in December 1963, he was appointed to the Board of the then North Eastern Region of British Railways and became an active member of the committee which investigated the case for, and recommended, a technical university on Teesside. He was a Ramsey Memorial Fellow and Fellow of University College, London. A sprinter in his youth, he always took an interest in sport, particularly athletics.

All those who knew him well, inside and outside the Company, remember him with respect and affection, and have great sympathy for his wife and son.

Fernhurst grows its own bananas

On a recent visit to Plant Protection headquarters at Fernhurst, Sir Peter and Lady Allen sampled some of the first bananas to be grown in the tropical glasshouses on the Fernhurst Estate. The glasshouses are used mainly for growing house plants and other tropical plants for demonstrating the use of Plant Protection products, but they also try to grow one unusual plant each year.

They have so far successfully grown pineapples, oranges, grapefruit, passion fruit, yams, luffas (the skeleton of the fruit is used as a sponge) coffee, cotton and tea. But none of them has caught people's imagination like this year's two banana plants, according to Mr. Alan Newman, the head gardener. 'They are spectacular plants, about 8 to 10 feet tall and with enormous grey-green leaves. In spite of its height the banana is not strictly a tree. It grows just like a herbaceous plant, producing a growth which

flowers, fruits and dies down within the year. At the same time it throws up a number of shoots from the base which

provide the next year's crop. We've had over 100 bananas this year and we are hoping for even more next year.'

Obituary Dr. S. W. Saunders

It is announced with deep regret that Dr. S. W. Saunders, who at the time of his retirement in 1963 was chairman of Heavy Organic Chemicals Division, died on 5th June.

Mr. T. B. Clark writes:

Sammy Saunders, who died last month at the age of 66, was one of the strong characters of ICI. He suspected loquacity, disdained formality, resented pretentiousness and developed a technique of interjecting some witticism or the cryptic phrase 'so what?' into discussions so that all the participants, no matter how elevated, were immediately brought down to earth. New ideas, whether these were new methods of tackling old problems or complete innovations,

always appealed to him. The propounders, if they survived a teasing cross-examination based on sound technical knowledge and long experience, could rely on his giving them a fair opportunity to put their ideas into practice.

He had a horror of giving anyone the impression that they might achieve a position higher than they in fact would attain, so left some with the impression that he was not very sympathetic to their personal ambitions. In practice, no one was quicker to spot a contribution beyond the normal, or more assiduous in getting the contributor generous recognition in the proper quarter. He had a great interest and belief in people and was always delighted to see his colleagues, above or below him, make progress.

Born in Kent and a graduate of University College, Lon-

D-Day is less than 3 years away

On 15th February 1971 Britain goes over to decimal currency. It seems a long way away – but ICI is already planning for the day when the £ will contain one hundred bright new pence, says Michael Danckwerts

To a nation still digesting the effects of devaluation, the prospect of another major currency upheaval may be hard to swallow. But there is little argument about the advantages of this one, late though it is (the Americans led the decimal revolution in 1786, and almost all other countries have followed, including Zambia with its 100 ngwee to the kwacha). Money sums and ordinary arithmetic will suddenly come into harmony, so that anyone who can count up to 100 will be able to master our currency. Quite apart from lifting a cloud of incomprehension from primary school classes, decimal currency will make immediate sense to foreigners who have had to wrestle with the mysteries of £, s. and d. In the business world, costing, accounting, and the preparation of innumerable documents, from wage slips to bills of lading, will be far simpler and cheaper – especially for a company such as ICI, which sells more than half its goods abroad.

Between now and D-day the Government's decimal currency board will be preparing the ground. They have already issued their first guidance notes to the business community and will build up to a crescendo of propaganda to the general public between Christmas 1970 and the conversion date in 1971. Judging by experience in Australia, the man in the street should come to terms quickly with the new currency – though at first there are bound to be minor irritations, such as longer queues at the supermarket cash desk and delays to buses while conductors juggle with two kinds of coinage at once. Much more far-reaching are the effects on business and industry, and this is why an ICI decimal currency committee,* with Peter Ricardo of Management Services Department as chairman and supported by four inter-Divisional working parties, is already at work – and encountering some interesting problems.

'Our biggest problem will be prices,' says Ricardo. 'Old and new currencies will be circulating side by side for some time after D-day, and everyone will expect to see a fair and logical relationship between old and new prices. If they don't, they will not hesitate to complain about profiteering. On the other hand, if we bend over backwards too far we'll be losing money for ICI.' You can see what he means. Old prices cannot simply be translated into decimal terms overnight, because the conversion is only exact at two points: 6d. will equal 2½ new pence, and 1s. will equal five new pence. The 'coin equivalents' table produced by the Halsbury Committee, which looked into currency decimalisation in 1963, works on the swings-and-roundabouts



principle, so that gains and losses on the range of prices up to one shilling cancel each other out. But this will be little consolation to the buyer of a single item priced at, say, four new pence instead of 9d., for it will cost him more than $\frac{1}{2}$ d. extra.

Some of the implications of the pricing problem were investigated by a large London advertising agency, J. Walter Thompson, last summer, when they turned their staff supermarket into a decimal shop for an experimental period. Decimal prices were displayed alongside the old prices, and customers were supplied with dummy decimal coinage. The shop had only been open an hour when one man complained of being overcharged by one-fifth of a penny on a packet of cigarettes. On the other hand, shoppers were quick to see where conversion had given them the edge. Two chocolate bars of the same kind, one twice the size of the other, were priced at $2\frac{1}{2}$ new pence and one new penny respectively against the old prices of 6d. and 3d. People readily grasped the fact that it paid to buy two small bars rather than one large one.

A manufacturer or retailer could meet this situation by increasing the price of both bars, to three and $1\frac{1}{2}$ new pence. But how would the customers react? For ICI the problem is just the same: round prices down and lose money, or round them up and antagonise customers? Although most of our products are sold in bulk, many – such as plastics, dyestuffs and fibres – are priced by the lb. A penny per lb lost by rounding down for appearance's sake could mean a serious loss of profit.

ICI is already working on ways round this difficulty. The first aim is to eliminate from prices, between now and D-day, all the pennies other than 6d., which converts nicely, but particularly 3d. and 9d., where the discrepancy between old and new prices would be the largest. Sometimes this will be done by changing pack sizes, sometimes by quoting prices not in pence per lb but in £ per ton – or, better still, £ per metric ton, for this is a golden opportunity to turn over to the metric weights and measures already used by four-fifths of the world's population.

Nobel Division has already rationalised packs and prices for a product previously sold in 56 lb bags. To customers buying one ton, the price was 2s. $1\frac{1}{2}$ d. per lb. In the new currency the price would have been £0.10729 per lb., involving a pretty puzzling sum for anyone wanting a ton. It is now packed in 25 kilo bags and priced at £236.6 per metric ton. Even UK customers have quickly accepted these new forms, and when D-day comes no change will be needed. The 'Dulux' dog may also acquire a slightly Continental accent. Paints Division, at present packing its products in quantities ranging from half-pints upwards, could well decide to go metric at the same time as rounding off prices in preparation for D-day, selling by the half-litre, one-litre, $2\frac{1}{2}$ -litre and 5-litre can.

Divisions are not all waiting for D-day before adopting decimal pricing systems – perfectly legal so long as totals on invoices continue to appear in £ s. d. Mond and Plastics Division, for example, are currently programming computers to deal with their order and invoice systems in decimals of the £. Before D-day, totals will appear in £, s. and d.; after D-day this item will be dropped, leaving the rest of the computer programme intact.

ICI's decimal currency working parties have plenty of other problems to consider – such as the replacement and conversion of office machines, wage and salary deductions, computer programmes, cash handling, stationery, and specific training for the staff affected.

But Peter Ricardo, who visited Australia and New Zealand last autumn, says the most valuable lesson he learned was that in both countries the conversion to decimal currency was far simpler than anyone imagined it would be. The Currency Boards received several hundred telephone calls about prices on D-day, and double the number on D+1 – mainly friendly in tone. On D+2 the number of calls was the same as on D+1, but their tone was more irritable. On D+3 the number of calls was halved and the tone was friendly again. Within a week the calls had almost ceased. Most had cost more than the fraction of a cent or few cents that the caller questioned.

In Australia, ICIANZ laid on an elaborate programme of training lectures for all their staff – but now feel that it was too elaborate. There will be no need, as Peter Ricardo sees it, for ICI to mount elaborate publicity schemes intended to educate its customers and suppliers – they will educate themselves. Within ICI, only the comparatively few people directly handling cash will need special training. Others will be encouraged to use their own initiative in overcoming any small difficulties the new currency may bring.

Australia and New Zealand found that the whole change-over cost them just half as much as they had expected (in both countries the government helped with the conversion of office machinery). It was originally estimated that conversion to decimal currency would cost Britain £128 million. Now it seems likely to cost less, and ICI's share will be very modest indeed, thanks to the planning that is going on now. Some expense is inescapable: the conversion of 350 accounting machines and the buying of 750 new ones, for instance, will not be subsidised by the Government, as it was in Australia and New Zealand, and will cost £250,000 – but the larger part of this will come out of normal replacement costs.

All of us, in our capacity as private citizens, will be the targets for a barrage of government publicity designed to allay our fears and sharpen up our arithmetic. The possibility of being 'done' for small amounts as we go around the shops will be put in its proper perspective, but just one thing worries me. If I send my son out on 15th February 1971 armed with five sixpences to buy three 9d. ice creams, should I expect $1\frac{1}{2}$ new pence change or only a half new penny? Try this sum with the help of the coin equivalent column of the conversion table. One way of doing it is to find the decimal currency equivalent for 2s. 3d. The other way (and this could earn the ice cream man a thick ear from someone) is to find the equivalent of 9d. and multiply by three.

** The committee members have been chosen to represent various broad interests within ICI. Treasurer's Department is represented by the secretary, J. Levison; finance and 'consumer market' Divisions by J. M. Hollingsworth of Paints Division; commercial and 'bulk products' Divisions by J. H. Harvey-Jones of Heavy Organic Chemicals Division; personnel and production by Dr. J. Gadsby of Plastics Division; purchasing and marketing by P. J. Massey of Commercial Co-ordination Department; public relations and press by F. G. J. Long of Public Relations Department; personnel by B. T. Jenkins of Central Personnel Department.*

In preparing for 'D-Day' Nobel Division have taken the opportunity to rationalise both the packing and pricing of this product, previously sold in 56 lb. bags. It is now packed in 25 kilo bags and sold by the metric ton

CONVERSION TABLE

OLD CURRENCY	NEW CURRENCY	
	Exact equivalent (to 2 decimal places)	Coin equivalent for cash transactions
1d.	0.42 new penny	$\frac{1}{2}$ new penny
2d.	0.83 p.	1 p.
3d.	1.25 p.	1 p.
4d.	1.67 p.	$1\frac{1}{2}$ p.
5d.	2.08 p.	2 p.
6d.	2.50 p.	$2\frac{1}{2}$ p.
7d.	2.92 p.	3 p.
8d.	3.33 p.	$3\frac{1}{2}$ p.
9d.	3.75 p.	4 p.
10d.	4.17 p.	4 p.
11d.	4.58 p.	$4\frac{1}{2}$ p.
1s.	5.00 p.	5 p.



it's a small world-in flight

John O'Donnell

This engine-powered free-flight scale model of a 'Martinside Buzzard' is complete in every detail



My wife June and I had no trouble deciding where to go for the recent spring holiday weekend. We went to the Royal Naval Air Station at Yeovilton in Somerset – just as last year we chose to spend part of our annual holiday at a US Navy air base in California, and in 1965 travelled by four different aircraft to a small town in Finland, where for most of our stay we could be found at the tiny, tree-ringed local airfield.

Odd choices, perhaps, so why were they so easy to make? At all three places major competitive rallies were being held for flying model aircraft and ever since my schooldays I have been an enthusiastic aero-modeller. For years I have made models (June says she always knows where to find me in the evenings – 'in the workshop, knee-deep in balsa shavings'), and for most of this time I have also flown them in competitions. These have included world championships like the meeting three years ago in Finland, British 'nationals' such as the Yeovilton event at Whitsun and, most exciting of all, the American 1967 championships at Los Alamitos air base, California.

Not that all the fun of the hobby comes from visiting strange places or winning trophies. For me its fascination goes much deeper. Perhaps because it is so much the product of modern civilisation, the design and construction of model aircraft has progressed steadily since it began, long before the Wright brothers, with the building of 'miniature flying-machines' that really flew.

Once the province of the experimenter or even the scientist proper, it has given hundreds of thousands of enthusiasts the chance to apply, small-scale, the 'technological fall-out' from the modern aerospace industry. Development, materials and techniques pioneered in building full-size aircraft have brought new possibilities into model-making. For many of us this has been reason enough to stay with a hobby which probably began with a simple kit bought as a boy.

The first three decades of man-carrying aircraft produced enthusiasts

anxious to make working duplicates on a smaller scale. Flight was achieved with spruce-framed, silk-covered models powered by twisted strands of rubber. The mid-1930s brought balsa wood – the lightest practical timber – and the first miniature petrol engines. Suddenly the duration of flights became measured in minutes.

Wartime restrictions brought a change in emphasis, to unpowered flight, with gliders by far the most popular class, but the immediate post-war interest in flying brought many developments which certainly enlivened my own early days in the hobby. The most fundamental came from a clever American who perfected a way to tether *and control* an engine-driven model in circular flight. Speed, aerobatics and highly-detailed models all became practicable. Not surprisingly, 'control-line' flying became immensely popular.

Internal combustion engines of either diesel (compression) or glow (not spark) ignition became cheap, powerful, mass-produced items, with obvious influence on the types of model flown. They were not without their competitors, for models have also been powered by compressed air and CO₂ engines, electric motors, pulse jets, solid fuel rockets, and even the latest Wankel rotary piston engines.

Recent years have seen radio control of models advance to the transistorised 'black box' stage, so reliable that one can fit and forget, and new materials of the plastics age are also being used in modelling. Glass-fibre, expanded foams, nylon, epoxy resins and polyester films are all widely accepted. Models vary from the functional to the highly realistic. At one end of the range are unbelievably light, rubber-powered models for flying indoors, in large halls or aircraft hangars. At the other are large multi-engined, radio-controlled versions with a more obvious appeal.

The model types with most appeal have survived as today's three basic competition categories – free-flight, control-line and radio-controlled. My own interest has always been in the



Above: Gliders can be 'slope-soared' from suitable hills or ridges. Here a radio-controlled scale model is launched from a Welsh hillside

Right: All the controls fitted to a full-size aircraft are duplicated in this typical modern radio-controlled aerobatic model, even to brakes on the landing wheels. Models of this sort can do manoeuvres that a pilot could not stand



Below: This finely-detailed and radio-controlled model of a US Navy T-28 aircraft won a class award at the 1966 British National Championships (Aeromodeller photograph)



first group, since I have always been more interested in the aircraft side of the hobby than in the power plants.

I certainly have a competitive outlook and, perhaps because of my scientific background, I much prefer events which are judged objectively. In free flight the generally-accepted measure of performance is the time the model remains in the air. This is simply timed with a stop-watch, and to me is much less open to subjective judgment than, say, the roundness of an aerobatic loop. Speed or race-type events, common in control-line classes and now appearing in radio control also, are quite objective – but put the emphasis on the horsepower available.

In free-flight events the distance travelled by the model does not count at all, so ideal conditions are flat, calm days when the model lands back at your feet. But few days in Britain are that calm. Most competitions require three flights, only the first three minutes of each counting for scoring purposes. The three main varieties of free-flight model are gliders, which are towed into the air on a line and then released for a glide or even a soaring flight in localised patches of rising warm air, or thermals, that will keep them up for minutes; rubber-powered models in

which the rubber motor should take the model high enough to permit a lengthy glide back to the ground; and powered. These have a small engine allowed to run for ten seconds, again with the aim of getting the model high enough for a long glide.

The hobby is organised both here and overseas with the usual pyramid structure of local clubs, regional organisations and national governing body which in turn co-operates with other members of an international committee. Contests are held at all levels up to officially recognised world championships, and this can mean wide travel for the serious competitor.

Because expenses have usually to be met personally, most of my trips double as holidays, and my wife and I never decide our holidays until the contest calendar is known. It is all well worth while, however, for there is great friendliness among modellers. Last year's visit to California, for example, was made possible only by the kindness of an American enthusiast who invited June and me to stay with him in Kansas and then took us to the championships at Los Alamitos. It was amazing just how many ready-made friends I found – all through sharing a common interest.

Left: The variety which can exist even between models designed to the same rules is shown in this picture of the author with one of his own models (top) and an American model flown at the same international contest in France. 'Gardening clothes' are standard dress among enthusiasts, who retrieve their own models, often in bad weather and over all kinds of country. Right: This control-line aerobatic model is realistically finished in Italian Air Force camouflage and markings. Below: The author launches a rubber-powered model built to world championship specifications.



Above: During a visit to America last year as the guest of an aero-modeller friend from Kansas, John O'Donnell competed in the US national championships in California. He also took photographs for use in the British magazine *Aeromodeller* and here he shows 'Miss Model Aviation 1967' just how he wants her to hold a fine control-line model for the camera.

Right: Made by the author and held here by his wife June, this engine-powered duration model is typical of its class, which must achieve fast climb and floating glide.



Left: Enthusiasts may spend up to £200 on the complex electronic equipment used in some radio-controlled models. This semi-scale type, fitted for radio control, is capable of aerobatic performance (*Aeromodeller* photograph).

Right: The search for performance can result in some strange layouts; this rubber-powered design is nothing if not functional.



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View from the office window – 2. Looking out from ICI House, Chowringhee, in the centre of Calcutta. To the left is part of the green open space of the Maidan, and in the distance the Howrah Bridge across the River Hooghly. ICI House is the headquarters looking after the interests of the ICI group of companies in India

